

Sequence Listing

<110> SAGAWA, Hiroaki et al.

<120> PROCESS FOR PRODUCING CYTOTOXIC LYMPHOCYTE

<130> 1422-0644PUS1

<140> US 10/509,055

<141> 2004-09-24

<150> PCT/JP03/03575

<151> 2003-03-25

<160> 24

<170> Patent-In 3.3

<210> 1

<211> 87

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-8

<400> 1

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln |
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | | | |
| | | | | 80 | | | | | 85 | | | | | |

<210> 2

<211> 90

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-9

<400> 2

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Leu | Asp | Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Asn | Ser | Phe | Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Gly | Tyr | Arg | Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Arg | Glu | Asp | Arg | Val | Pro | His | Ser | Arg | Asn | Ser | Ile | Thr | Leu | Thr |
| | | | | 50 | | | | | 55 | | | | | 60 |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Leu | Thr | Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Ile | Val | Ala | Leu |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Asn | Gly | Arg | Glu | Glu | Ser | Pro | Leu | Leu | Ile | Gly | Gln | Gln | Ser | Thr |
| | | | | 80 | | | | | 85 | | | | | 90 |

<210> 3
 <211> 94
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial region of fibronectin named III-10

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ser | Asp | Val | Pro | Arg | Asp | Leu | Glu | Val | Val | Ala | Ala | Thr | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Thr | Ser | Leu | Leu | Ile | Ser | Trp | Asp | Ala | Pro | Ala | Val | Thr | Val | Arg |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Tyr | Tyr | Arg | Ile | Thr | Tyr | Gly | Glu | Thr | Gly | Gly | Asn | Ser | Pro | Val |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Gln | Glu | Phe | Thr | Val | Pro | Gly | Ser | Lys | Ser | Thr | Ala | Thr | Ile | Ser |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Gly | Leu | Lys | Pro | Gly | Val | Asp | Tyr | Thr | Ile | Thr | Val | Tyr | Ala | Val |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Thr | Gly | Arg | Gly | Asp | Ser | Pro | Ala | Ser | Ser | Lys | Pro | Ile | Ser | Ile |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Asn | Tyr | Arg | Thr | | | | | | | | | | | |

<210> 4
 <211> 92
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> partial region of fibronectin named III-12

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ile | Pro | Ala | Pro | Thr | Asp | Leu | Lys | Phe | Thr | Gln | Val | Thr | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Thr | Ser | Leu | Ser | Ala | Gln | Trp | Thr | Pro | Pro | Asn | Val | Gln | Leu | Thr |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Gly | Tyr | Arg | Val | Arg | Val | Thr | Pro | Lys | Glu | Lys | Thr | Gly | Pro | Met |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Lys | Glu | Ile | Asn | Leu | Ala | Pro | Asp | Ser | Ser | Ser | Val | Val | Val | Ser |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Gly | Leu | Met | Val | Ala | Thr | Lys | Tyr | Glu | Val | Ser | Val | Tyr | Ala | Leu |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Lys | Asp | Thr | Leu | Thr | Ser | Arg | Pro | Ala | Gln | Gly | Val | Val | Thr | Thr |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Leu | Glu | | | | | | | | | | | | | |

<210> 5
 <211> 89
 <212> PRT
 <213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-13

<400> 5

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Val | Ser | Pro | Pro | Arg | Arg | Ala | Arg | Val | Thr | Asp | Ala | Thr | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Thr | Thr | Ile | Thr | Ile | Ser | Trp | Arg | Thr | Lys | Thr | Glu | Thr | Ile | Thr |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Gly | Phe | Gln | Val | Asp | Ala | Val | Pro | Ala | Asn | Gly | Gln | Thr | Pro | Ile |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Gln | Arg | Thr | Ile | Lys | Pro | Asp | Val | Arg | Ser | Tyr | Thr | Ile | Thr | Gly |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Leu | Gln | Pro | Gly | Thr | Asp | Tyr | Lys | Ile | Tyr | Leu | Tyr | Thr | Leu | Asn |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Asp | Asn | Ala | Arg | Ser | Ser | Pro | Val | Val | Ile | Asp | Ala | Ser | Thr | |
| | | | | 80 | | | | | 85 | | | | | |

<210> 6

<211> 90

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named III-14

<400> 6

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ile | Asp | Ala | Pro | Ser | Asn | Leu | Arg | Phe | Leu | Ala | Thr | Thr | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Asn | Ser | Leu | Leu | Val | Ser | Trp | Gln | Pro | Pro | Arg | Ala | Arg | Ile | Thr |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Gly | Tyr | Ile | Ile | Lys | Tyr | Glu | Lys | Pro | Gly | Ser | Pro | Pro | Arg | Glu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Val | Val | Pro | Arg | Pro | Arg | Pro | Gly | Val | Thr | Glu | Ala | Thr | Ile | Thr |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Gly | Leu | Glu | Pro | Gly | Thr | Glu | Tyr | Thr | Ile | Tyr | Val | Ile | Ala | Leu |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Lys | Asn | Asn | Gln | Lys | Ser | Glu | Pro | Leu | Ile | Gly | Arg | Lys | Lys | Thr |
| | | | | 80 | | | | | 85 | | | | | 90 |

<210> 7

<211> 25

<212> PRT

<213> Artificial Sequence

<220>

<223> partial region of fibronectin named CS-1

<400> 7

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Glu | Leu | Pro | Gln | Leu | Val | Thr | Leu | Pro | His | Pro | Asn | Leu | His |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Gly | Pro | Glu | Ile | Leu | Asp | Val | Pro | Ser | Thr | | | | | |
| | | | | 20 | | | | | 25 | | | | | |

<210> 8

<211> 274

<212> PRT

<213> Human

<220>

<223> fibronectin fragment named C-274

<400> 8

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln |
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | Gly | Leu | Asp |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala | Asn | Ser | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr | Gly | Tyr | Arg |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Arg | Val | Pro | His | Ser | Arg | Asn | Ser | Ile | Thr | Leu | Thr | Asn | Leu | Thr |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Ile | Val | Ala | Leu | Asn | Gly | Arg |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Glu | Glu | Ser | Pro | Leu | Leu | Ile | Gly | Gln | Gln | Ser | Thr | Val | Ser | Asp |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Val | Pro | Arg | Asp | Leu | Glu | Val | Val | Ala | Ala | Thr | Pro | Thr | Ser | Leu |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Leu | Ile | Ser | Trp | Asp | Ala | Pro | Ala | Val | Thr | Val | Arg | Tyr | Tyr | Arg |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Ile | Thr | Tyr | Gly | Glu | Thr | Gly | Gly | Asn | Ser | Pro | Val | Gln | Glu | Phe |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Thr | Val | Pro | Gly | Ser | Lys | Ser | Thr | Ala | Thr | Ile | Ser | Gly | Leu | Lys |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Pro | Gly | Val | Asp | Tyr | Thr | Ile | Thr | Val | Tyr | Ala | Val | Thr | Gly | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Gly | Asp | Ser | Pro | Ala | Ser | Ser | Lys | Pro | Ile | Ser | Ile | Asn | Tyr | Arg |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Thr | Glu | Ile | Asp | | | | | | | | | | | |

<210> 9

<211> 271

<212> PRT

<213> Human

<220>

<223> fibronectin fragment named H-271

<400> 9

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Ile | Pro | Ala | Pro | Thr | Asp | Leu | Lys | Phe | Thr | Gln | Val | Thr | Pro |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Thr | Ser | Leu | Ser | Ala | Gln | Trp | Thr | Pro | Pro | Asn | Val | Gln | Leu | Thr |

| | | | | | |
|---|-----|--|-----|--|-----|
| | 20 | | 25 | | 30 |
| Gly Tyr Arg Val Arg Val Thr Pro Lys Glu Lys Thr Gly Pro Met | | | | | |
| | 35 | | 40 | | 45 |
| Lys Glu Ile Asn Leu Ala Pro Asp Ser Ser Ser Val Val Val Ser | | | | | |
| | 50 | | 55 | | 60 |
| Gly Leu Met Val Ala Thr Lys Tyr Glu Val Ser Val Tyr Ala Leu | | | | | |
| | 65 | | 70 | | 75 |
| Lys Asp Thr Leu Thr Ser Arg Pro Ala Gln Gly Val Val Thr Thr | | | | | |
| | 80 | | 85 | | 90 |
| Leu Glu Asn Val Ser Pro Pro Arg Arg Ala Arg Val Thr Asp Ala | | | | | |
| | 95 | | 100 | | 105 |
| Thr Glu Thr Thr Ile Thr Ile Ser Trp Arg Thr Lys Thr Glu Thr | | | | | |
| | 110 | | 115 | | 120 |
| Ile Thr Gly Phe Gln Val Asp Ala Val Pro Ala Asn Gly Gln Thr | | | | | |
| | 125 | | 130 | | 135 |
| Pro Ile Gln Arg Thr Ile Lys Pro Asp Val Arg Ser Tyr Thr Ile | | | | | |
| | 140 | | 145 | | 150 |
| Thr Gly Leu Gln Pro Gly Thr Asp Tyr Lys Ile Tyr Leu Tyr Thr | | | | | |
| | 155 | | 160 | | 165 |
| Leu Asn Asp Asn Ala Arg Ser Ser Pro Val Val Ile Asp Ala Ser | | | | | |
| | 170 | | 175 | | 180 |
| Thr Ala Ile Asp Ala Pro Ser Asn Leu Arg Phe Leu Ala Thr Thr | | | | | |
| | 185 | | 190 | | 195 |
| Pro Asn Ser Leu Leu Val Ser Trp Gln Pro Pro Arg Ala Arg Ile | | | | | |
| | 200 | | 205 | | 210 |
| Thr Gly Tyr Ile Ile Lys Tyr Glu Lys Pro Gly Ser Pro Pro Arg | | | | | |
| | 215 | | 220 | | 225 |
| Glu Val Val Pro Arg Pro Arg Pro Gly Val Thr Glu Ala Thr Ile | | | | | |
| | 230 | | 235 | | 240 |
| Thr Gly Leu Glu Pro Gly Thr Glu Tyr Thr Ile Tyr Val Ile Ala | | | | | |
| | 245 | | 250 | | 255 |
| Leu Lys Asn Asn Gln Lys Ser Glu Pro Leu Ile Gly Arg Lys Lys | | | | | |
| | 260 | | 265 | | 270 |
| Thr | | | | | |

<210> 10

<211> 296

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named H-296

<400> 10

| | | | | | |
|---|----|--|----|--|----|
| Ala Ile Pro Ala Pro Thr Asp Leu Lys Phe Thr Gln Val Thr Pro | | | | | |
| 1 | 5 | | 10 | | 15 |
| Thr Ser Leu Ser Ala Gln Trp Thr Pro Pro Asn Val Gln Leu Thr | | | | | |
| | 20 | | 25 | | 30 |
| Gly Tyr Arg Val Arg Val Thr Pro Lys Glu Lys Thr Gly Pro Met | | | | | |
| | 35 | | 40 | | 45 |
| Lys Glu Ile Asn Leu Ala Pro Asp Ser Ser Ser Val Val Val Ser | | | | | |
| | 50 | | 55 | | 60 |
| Gly Leu Met Val Ala Thr Lys Tyr Glu Val Ser Val Tyr Ala Leu | | | | | |
| | 65 | | 70 | | 75 |
| Lys Asp Thr Leu Thr Ser Arg Pro Ala Gln Gly Val Val Thr Thr | | | | | |
| | 80 | | 85 | | 90 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Glu | Asn | Val | Ser | Pro | Pro | Arg | Arg | Ala | Arg | Val | Thr | Asp | Ala | 95 | 100 | 105 |
| Thr | Glu | Thr | Thr | Ile | Thr | Ile | Ser | Trp | Arg | Thr | Lys | Thr | Glu | Thr | 110 | 115 | 120 |
| Ile | Thr | Gly | Phe | Gln | Val | Asp | Ala | Val | Pro | Ala | Asn | Gly | Gln | Thr | 125 | 130 | 135 |
| Pro | Ile | Gln | Arg | Thr | Ile | Lys | Pro | Asp | Val | Arg | Ser | Tyr | Thr | Ile | 140 | 145 | 150 |
| Thr | Gly | Leu | Gln | Pro | Gly | Thr | Asp | Tyr | Lys | Ile | Tyr | Leu | Tyr | Thr | 155 | 160 | 165 |
| Leu | Asn | Asp | Asn | Ala | Arg | Ser | Ser | Pro | Val | Val | Ile | Asp | Ala | Ser | 170 | 175 | 180 |
| Thr | Ala | Ile | Asp | Ala | Pro | Ser | Asn | Leu | Arg | Phe | Leu | Ala | Thr | Thr | 185 | 190 | 195 |
| Pro | Asn | Ser | Leu | Leu | Val | Ser | Trp | Gln | Pro | Pro | Arg | Ala | Arg | Ile | 200 | 205 | 210 |
| Thr | Gly | Tyr | Ile | Ile | Lys | Tyr | Glu | Lys | Pro | Gly | Ser | Pro | Pro | Arg | 215 | 220 | 225 |
| Glu | Val | Val | Pro | Arg | Pro | Arg | Pro | Gly | Val | Thr | Glu | Ala | Thr | Ile | 230 | 235 | 240 |
| Thr | Gly | Leu | Glu | Pro | Gly | Thr | Glu | Tyr | Thr | Ile | Tyr | Val | Ile | Ala | 245 | 250 | 255 |
| Leu | Lys | Asn | Asn | Gln | Lys | Ser | Glu | Pro | Leu | Ile | Gly | Arg | Lys | Lys | 260 | 265 | 270 |
| Thr | Asp | Glu | Leu | Pro | Gln | Leu | Val | Thr | Leu | Pro | His | Pro | Asn | Leu | 275 | 280 | 285 |
| His | Gly | Pro | Glu | Ile | Leu | Asp | Val | Pro | Ser | Thr | | | | | 290 | 295 | |

<210> 11

<211> 549

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CH-271

<400> 11

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg | 1 | 5 | 10 | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu | 20 | 25 | 30 | |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu | 35 | 40 | 45 | |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu | 50 | 55 | 60 | |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln | 65 | 70 | 75 | |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | Gly | Leu | Asp | 80 | 85 | 90 | |
| Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala | Asn | Ser | Phe | 95 | 100 | 105 | |
| Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr | Gly | Tyr | Arg | 110 | 115 | 120 | |
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp | 125 | 130 | 135 | |

| | | | | | |
|---------------------|---------------------|---------------------|-----|-----|-----|
| Arg Val Pro His Ser | Arg Asn Ser Ile Thr | Leu Thr Asn Leu Thr | 140 | 145 | 150 |
| Pro Gly Thr Glu Tyr | Val Val Ser Ile Val | Ala Leu Asn Gly Arg | 155 | 160 | 165 |
| Glu Glu Ser Pro Leu | Leu Ile Gly Gln Gln | Ser Thr Val Ser Asp | 170 | 175 | 180 |
| Val Pro Arg Asp Leu | Glu Val Val Ala Ala | Thr Pro Thr Ser Leu | 185 | 190 | 195 |
| Leu Ile Ser Trp Asp | Ala Pro Ala Val Thr | Val Arg Tyr Tyr Arg | 200 | 205 | 210 |
| Ile Thr Tyr Gly Glu | Thr Gly Gly Asn Ser | Pro Val Gln Glu Phe | 215 | 220 | 225 |
| Thr Val Pro Gly Ser | Lys Ser Thr Ala Thr | Ile Ser Gly Leu Lys | 230 | 235 | 240 |
| Pro Gly Val Asp Tyr | Thr Ile Thr Val Tyr | Ala Val Thr Gly Arg | 245 | 250 | 255 |
| Gly Asp Ser Pro Ala | Ser Ser Lys Pro Ile | Ser Ile Asn Tyr Arg | 260 | 265 | 270 |
| Thr Glu Ile Asp Lys | Pro Ser Met Ala Ile | Pro Ala Pro Thr Asp | 275 | 280 | 285 |
| Leu Lys Phe Thr Gln | Val Thr Pro Thr Ser | Leu Ser Ala Gln Trp | 290 | 295 | 300 |
| Thr Pro Pro Asn Val | Gln Leu Thr Gly Tyr | Arg Val Arg Val Thr | 305 | 310 | 315 |
| Pro Lys Glu Lys Thr | Gly Pro Met Lys Glu | Ile Asn Leu Ala Pro | 320 | 325 | 330 |
| Asp Ser Ser Ser Val | Val Val Ser Gly Leu | Met Val Ala Thr Lys | 335 | 340 | 345 |
| Tyr Glu Val Ser Val | Tyr Ala Leu Lys Asp | Thr Leu Thr Ser Arg | 350 | 355 | 360 |
| Pro Ala Gln Gly Val | Val Thr Thr Leu Glu | Asn Val Ser Pro Pro | 365 | 370 | 375 |
| Arg Arg Ala Arg Val | Thr Asp Ala Thr Glu | Thr Thr Ile Thr Ile | 380 | 385 | 390 |
| Ser Trp Arg Thr Lys | Thr Glu Thr Ile Thr | Gly Phe Gln Val Asp | 395 | 400 | 405 |
| Ala Val Pro Ala Asn | Gly Gln Thr Pro Ile | Gln Arg Thr Ile Lys | 410 | 415 | 420 |
| Pro Asp Val Arg Ser | Tyr Thr Ile Thr Gly | Leu Gln Pro Gly Thr | 425 | 430 | 435 |
| Asp Tyr Lys Ile Tyr | Leu Tyr Thr Leu Asn | Asp Asn Ala Arg Ser | 440 | 445 | 450 |
| Ser Pro Val Val Ile | Asp Ala Ser Thr Ala | Ile Asp Ala Pro Ser | 455 | 460 | 465 |
| Asn Leu Arg Phe Leu | Ala Thr Thr Pro Asn | Ser Leu Leu Val Ser | 470 | 475 | 480 |
| Trp Gln Pro Pro Arg | Ala Arg Ile Thr Gly | Tyr Ile Ile Lys Tyr | 485 | 490 | 495 |
| Glu Lys Pro Gly Ser | Pro Pro Arg Glu Val | Val Pro Arg Pro Arg | 500 | 505 | 510 |
| Pro Gly Val Thr Glu | Ala Thr Ile Thr Gly | Leu Glu Pro Gly Thr | 515 | 520 | 525 |
| Glu Tyr Thr Ile Tyr | Val Ile Ala Leu Lys | Asn Asn Gln Lys Ser | 530 | 535 | 540 |
| Glu Pro Leu Ile Gly | Arg Lys Lys Thr | | 545 | | |

<210> 12
 <211> 574
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> fibronectin fragment named CH-296

<400> 12

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln |
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | Gly | Leu | Asp |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala | Asn | Ser | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr | Gly | Tyr | Arg |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Arg | Val | Pro | His | Ser | Arg | Asn | Ser | Ile | Thr | Leu | Thr | Asn | Leu | Thr |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Ile | Val | Ala | Leu | Asn | Gly | Arg |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Glu | Glu | Ser | Pro | Leu | Leu | Ile | Gly | Gln | Gln | Ser | Thr | Val | Ser | Asp |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Val | Pro | Arg | Asp | Leu | Glu | Val | Val | Ala | Ala | Thr | Pro | Thr | Ser | Leu |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Leu | Ile | Ser | Trp | Asp | Ala | Pro | Ala | Val | Thr | Val | Arg | Tyr | Tyr | Arg |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Ile | Thr | Tyr | Gly | Glu | Thr | Gly | Gly | Asn | Ser | Pro | Val | Gln | Glu | Phe |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Thr | Val | Pro | Gly | Ser | Lys | Ser | Thr | Ala | Thr | Ile | Ser | Gly | Leu | Lys |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Pro | Gly | Val | Asp | Tyr | Thr | Ile | Thr | Val | Tyr | Ala | Val | Thr | Gly | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Gly | Asp | Ser | Pro | Ala | Ser | Ser | Lys | Pro | Ile | Ser | Ile | Asn | Tyr | Arg |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Thr | Glu | Ile | Asp | Lys | Pro | Ser | Met | Ala | Ile | Pro | Ala | Pro | Thr | Asp |
| | | | | 275 | | | | | 280 | | | | | 285 |
| Leu | Lys | Phe | Thr | Gln | Val | Thr | Pro | Thr | Ser | Leu | Ser | Ala | Gln | Trp |
| | | | | 290 | | | | | 295 | | | | | 300 |
| Thr | Pro | Pro | Asn | Val | Gln | Leu | Thr | Gly | Tyr | Arg | Val | Arg | Val | Thr |
| | | | | 305 | | | | | 310 | | | | | 315 |
| Pro | Lys | Glu | Lys | Thr | Gly | Pro | Met | Lys | Glu | Ile | Asn | Leu | Ala | Pro |
| | | | | 320 | | | | | 325 | | | | | 330 |
| Asp | Ser | Ser | Ser | Val | Val | Val | Ser | Gly | Leu | Met | Val | Ala | Thr | Lys |
| | | | | 335 | | | | | 340 | | | | | 345 |
| Tyr | Glu | Val | Ser | Val | Tyr | Ala | Leu | Lys | Asp | Thr | Leu | Thr | Ser | Arg |

| | | | |
|---------------------|---------------------|---------------------|-----|
| Pro Ala Gln Gly | 350 | 355 | 360 |
| Val Val Thr Thr Leu | | Glu Asn Val Ser Pro | Pro |
| | 365 | 370 | 375 |
| Arg Arg Ala Arg | Val Thr Asp Ala Thr | Glu Thr Thr Ile Thr | Ile |
| | 380 | 385 | 390 |
| Ser Trp Arg Thr | Lys Thr Glu Thr Ile | Thr Gly Phe Gln Val | Asp |
| | 395 | 400 | 405 |
| Ala Val Pro Ala | Asn Gly Gln Thr Pro | Ile Gln Arg Thr Ile | Lys |
| | 410 | 415 | 420 |
| Pro Asp Val Arg | Ser Tyr Thr Ile Thr | Gly Leu Gln Pro Gly | Thr |
| | 425 | 430 | 435 |
| Asp Tyr Lys Ile | Tyr Leu Tyr Thr Leu | Asn Asp Asn Ala Arg | Ser |
| | 440 | 445 | 450 |
| Ser Pro Val Val | Ile Asp Ala Ser Thr | Ala Ile Asp Ala Pro | Ser |
| | 455 | 460 | 465 |
| Asn Leu Arg Phe | Leu Ala Thr Thr Pro | Asn Ser Leu Leu Val | Ser |
| | 470 | 475 | 480 |
| Trp Gln Pro Pro | Arg Ala Arg Ile Thr | Gly Tyr Ile Ile Lys | Tyr |
| | 485 | 490 | 495 |
| Glu Lys Pro Gly | Ser Pro Pro Arg Glu | Val Val Pro Arg Pro | Arg |
| | 500 | 505 | 510 |
| Pro Gly Val Thr | Glu Ala Thr Ile Thr | Gly Leu Glu Pro Gly | Thr |
| | 515 | 520 | 525 |
| Glu Tyr Thr Ile | Tyr Val Ile Ala Leu | Lys Asn Asn Gln Lys | Ser |
| | 530 | 535 | 540 |
| Glu Pro Leu Ile | Gly Arg Lys Lys Thr | Asp Glu Leu Pro Gln | Leu |
| | 545 | 550 | 555 |
| Val Thr Leu Pro | His Pro Asn Leu His | Gly Pro Glu Ile Leu | Asp |
| | 560 | 565 | 570 |
| Val Pro Ser Thr | | | |

<210> 13

<211> 302

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named C-CS1

<400> 13

| | |
|---|---------------------|
| Pro Thr Asp Leu Arg Phe Thr Asn Ile Gly | Pro Asp Thr Met Arg |
| 1 5 10 | 15 |
| Val Thr Trp Ala Pro Pro Pro Ser Ile Asp | Leu Thr Asn Phe Leu |
| 20 25 | 30 |
| Val Arg Tyr Ser Pro Val Lys Asn Glu Glu | Asp Val Ala Glu Leu |
| 35 40 | 45 |
| Ser Ile Ser Pro Ser Asp Asn Ala Val Val | Leu Thr Asn Leu Leu |
| 50 55 | 60 |
| Pro Gly Thr Glu Tyr Val Val Ser Val Ser | Ser Val Tyr Glu Gln |
| 65 70 | 75 |
| His Glu Ser Thr Pro Leu Arg Gly Arg Gln | Lys Thr Gly Leu Asp |
| 80 85 | 90 |
| Ser Pro Thr Gly Ile Asp Phe Ser Asp Ile | Thr Ala Asn Ser Phe |
| 95 100 | 105 |
| Thr Val His Trp Ile Ala Pro Arg Ala Thr | Ile Thr Gly Tyr Arg |
| 110 115 | 120 |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Arg | Val | Pro | His | Ser | Arg | Asn | Ser | Ile | Thr | Leu | Thr | Asn | Leu | Thr |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Ile | Val | Ala | Leu | Asn | Gly | Arg |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Glu | Glu | Ser | Pro | Leu | Leu | Ile | Gly | Gln | Gln | Ser | Thr | Val | Ser | Asp |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Val | Pro | Arg | Asp | Leu | Glu | Val | Val | Ala | Ala | Thr | Pro | Thr | Ser | Leu |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Leu | Ile | Ser | Trp | Asp | Ala | Pro | Ala | Val | Thr | Val | Arg | Tyr | Tyr | Arg |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Ile | Thr | Tyr | Gly | Glu | Thr | Gly | Gly | Asn | Ser | Pro | Val | Gln | Glu | Phe |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Thr | Val | Pro | Gly | Ser | Lys | Ser | Thr | Ala | Thr | Ile | Ser | Gly | Leu | Lys |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Pro | Gly | Val | Asp | Tyr | Thr | Ile | Thr | Val | Tyr | Ala | Val | Thr | Gly | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Gly | Asp | Ser | Pro | Ala | Ser | Ser | Lys | Pro | Ile | Ser | Ile | Asn | Tyr | Arg |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Thr | Glu | Ile | Asp | Lys | Pro | Ser | Asp | Glu | Leu | Pro | Gln | Leu | Val | Thr |
| | | | | 275 | | | | | 280 | | | | | 285 |
| Leu | Pro | His | Pro | Asn | Leu | His | Gly | Pro | Glu | Ile | Leu | Asp | Val | Pro |
| | | | | 290 | | | | | 295 | | | | | 300 |
| Ser | Thr | | | | | | | | | | | | | |

<210> 14

<211> 367

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CHV-89

<400> 14

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln |
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | Gly | Leu | Asp |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala | Asn | Ser | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr | Gly | Tyr | Arg |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Arg | Val | Pro | His | Ser | Arg | Asn | Ser | Ile | Thr | Leu | Thr | Asn | Leu | Thr |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Ile | Val | Ala | Leu | Asn | Gly | Arg |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Glu | Ser | Pro | 155 | Leu | Leu | Ile | Gly | Gln | 160 | Gln | Ser | Thr | Val | Ser | 165 | Asp |
| Val | Pro | Arg | Asp | 170 | Leu | Glu | Val | Val | Ala | 175 | Ala | Thr | Pro | Thr | Ser | 180 | Leu |
| Leu | Ile | Ser | Trp | 185 | Asp | Ala | Pro | Ala | Val | 190 | Thr | Val | Arg | Tyr | Tyr | 195 | Arg |
| Ile | Thr | Tyr | Gly | 200 | Glu | Thr | Gly | Gly | Asn | 205 | Ser | Pro | Val | Gln | Glu | 210 | Phe |
| Thr | Val | Pro | Gly | 215 | Ser | Lys | Ser | Thr | Ala | 220 | Thr | Ile | Ser | Gly | Leu | 225 | Lys |
| Pro | Gly | Val | Asp | 230 | Tyr | Thr | Ile | Thr | Val | 235 | Ala | Val | Thr | Gly | Arg | 240 | Arg |
| Gly | Asp | Ser | Pro | 245 | Ala | Ser | Ser | Lys | Pro | 250 | Ile | Ser | Ile | Asn | Tyr | 255 | Arg |
| Thr | Glu | Ile | Asp | 260 | Lys | Pro | Ser | Met | Asn | 265 | Val | Ser | Pro | Pro | Arg | 270 | Arg |
| Ala | Arg | Val | Thr | 275 | Asp | Ala | Thr | Glu | Thr | 280 | Thr | Ile | Thr | Ile | Ser | 285 | Trp |
| Arg | Thr | Lys | Thr | 290 | Glu | Thr | Ile | Thr | Gly | 295 | Phe | Gln | Val | Asp | Ala | 300 | Val |
| Pro | Ala | Asn | Gly | 305 | Gln | Thr | Pro | Ile | Gln | 310 | Arg | Thr | Ile | Lys | Pro | 315 | Asp |
| Val | Arg | Ser | Tyr | 320 | Thr | Ile | Thr | Gly | Leu | 325 | Gln | Pro | Gly | Thr | Asp | 330 | Tyr |
| Lys | Ile | Tyr | Leu | 335 | Tyr | Thr | Leu | Asn | Asp | 340 | Asn | Ala | Arg | Ser | Ser | 345 | Pro |
| Val | Val | Ile | Asp | 350 | Ala | Ser | Thr | | | 355 | | | | | | 360 | |
| | | | | 365 | | | | | | | | | | | | | |

<210> 15

<211> 368

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CHV-90

<400> 15

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln |
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | Gly | Leu | Asp |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala | Asn | Ser | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr | Gly | Tyr | Arg |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp |

| | | | | | |
|-----------------|---------------------|-------------------------|-----|--|-----|
| | 95 | | 100 | | 105 |
| Thr Val His Trp | Ile Ala Pro Arg Ala | Thr Ile Thr Gly Tyr Arg | | | |
| | 110 | | 115 | | 120 |
| Ile Arg His His | Pro Glu His Phe Ser | Gly Arg Pro Arg Glu Asp | | | |
| | 125 | | 130 | | 135 |
| Arg Val Pro His | Ser Arg Asn Ser Ile | Thr Leu Thr Asn Leu Thr | | | |
| | 140 | | 145 | | 150 |
| Pro Gly Thr Glu | Tyr Val Val Ser Ile | Val Ala Leu Asn Gly Arg | | | |
| | 155 | | 160 | | 165 |
| Glu Glu Ser Pro | Leu Leu Ile Gly Gln | Gln Ser Thr Val Ser Asp | | | |
| | 170 | | 175 | | 180 |
| Val Pro Arg Asp | Leu Glu Val Val Ala | Ala Thr Pro Thr Ser Leu | | | |
| | 185 | | 190 | | 195 |
| Leu Ile Ser Trp | Asp Ala Pro Ala Val | Thr Val Arg Tyr Tyr Arg | | | |
| | 200 | | 205 | | 210 |
| Ile Thr Tyr Gly | Glu Thr Gly Gly Asn | Ser Pro Val Gln Glu Phe | | | |
| | 215 | | 220 | | 225 |
| Thr Val Pro Gly | Ser Lys Ser Thr Ala | Thr Ile Ser Gly Leu Lys | | | |
| | 230 | | 235 | | 240 |
| Pro Gly Val Asp | Tyr Thr Ile Thr Val | Tyr Ala Val Thr Gly Arg | | | |
| | 245 | | 250 | | 255 |
| Gly Asp Ser Pro | Ala Ser Ser Lys Pro | Ile Ser Ile Asn Tyr Arg | | | |
| | 260 | | 265 | | 270 |
| Thr Glu Ile Asp | Lys Pro Ser Met Ala | Ile Pro Ala Pro Thr Asp | | | |
| | 275 | | 280 | | 285 |
| Leu Lys Phe Thr | Gln Val Thr Pro Thr | Ser Leu Ser Ala Gln Trp | | | |
| | 290 | | 295 | | 300 |
| Thr Pro Pro Asn | Val Gln Leu Thr Gly | Tyr Arg Val Arg Val Thr | | | |
| | 305 | | 310 | | 315 |
| Pro Lys Glu Lys | Thr Gly Pro Met Lys | Glu Ile Asn Leu Ala Pro | | | |
| | 320 | | 325 | | 330 |
| Asp Ser Ser Ser | Val Val Val Ser Gly | Leu Met Val Ala Thr Lys | | | |
| | 335 | | 340 | | 345 |
| Tyr Glu Val Ser | Val Tyr Ala Leu Lys | Asp Thr Leu Thr Ser Arg | | | |
| | 350 | | 355 | | 360 |
| Pro Ala Gln Gly | Val Val Thr Thr Leu | Glu | | | |
| | 365 | | 370 | | |

<210> 17

<211> 457

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CHV-179

<400> 17

| | | | | | |
|---------------------|---------------------|---------------------|--|--|----|
| Pro Thr Asp Leu Arg | Phe Thr Asn Ile Gly | Pro Asp Thr Met Arg | | | |
| 1 | 5 | 10 | | | 15 |
| Val Thr Trp Ala Pro | Pro Pro Ser Ile Asp | Leu Thr Asn Phe Leu | | | |
| | 20 | 25 | | | 30 |
| Val Arg Tyr Ser Pro | Val Lys Asn Glu Glu | Asp Val Ala Glu Leu | | | |
| | 35 | 40 | | | 45 |
| Ser Ile Ser Pro Ser | Asp Asn Ala Val Val | Leu Thr Asn Leu Leu | | | |
| | 50 | 55 | | | 60 |
| Pro Gly Thr Glu Tyr | Val Val Ser Val Ser | Ser Val Tyr Glu Gln | | | |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | Gly | Leu | Asp |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala | Asn | Ser | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr | Gly | Tyr | Arg |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Arg | Val | Pro | His | Ser | Arg | Asn | Ser | Ile | Thr | Leu | Thr | Asn | Leu | Thr |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Ile | Val | Ala | Leu | Asn | Gly | Arg |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Glu | Glu | Ser | Pro | Leu | Leu | Ile | Gly | Gln | Gln | Ser | Thr | Val | Ser | Asp |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Val | Pro | Arg | Asp | Leu | Glu | Val | Val | Ala | Ala | Thr | Pro | Thr | Ser | Leu |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Leu | Ile | Ser | Trp | Asp | Ala | Pro | Ala | Val | Thr | Val | Arg | Tyr | Tyr | Arg |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Ile | Thr | Tyr | Gly | Glu | Thr | Gly | Gly | Asn | Ser | Pro | Val | Gln | Glu | Phe |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Thr | Val | Pro | Gly | Ser | Lys | Ser | Thr | Ala | Thr | Ile | Ser | Gly | Leu | Lys |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Pro | Gly | Val | Asp | Tyr | Thr | Ile | Thr | Val | Tyr | Ala | Val | Thr | Gly | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Gly | Asp | Ser | Pro | Ala | Ser | Ser | Lys | Pro | Ile | Ser | Ile | Asn | Tyr | Arg |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Thr | Glu | Ile | Asp | Lys | Pro | Ser | Met | Asn | Val | Ser | Pro | Pro | Arg | Arg |
| | | | | 275 | | | | | 280 | | | | | 285 |
| Ala | Arg | Val | Thr | Asp | Ala | Thr | Glu | Thr | Thr | Ile | Thr | Ile | Ser | Trp |
| | | | | 290 | | | | | 295 | | | | | 300 |
| Arg | Thr | Lys | Thr | Glu | Thr | Ile | Thr | Gly | Phe | Gln | Val | Asp | Ala | Val |
| | | | | 305 | | | | | 310 | | | | | 315 |
| Pro | Ala | Asn | Gly | Gln | Thr | Pro | Ile | Gln | Arg | Thr | Ile | Lys | Pro | Asp |
| | | | | 320 | | | | | 325 | | | | | 330 |
| Val | Arg | Ser | Tyr | Thr | Ile | Thr | Gly | Leu | Gln | Pro | Gly | Thr | Asp | Tyr |
| | | | | 335 | | | | | 340 | | | | | 345 |
| Lys | Ile | Tyr | Leu | Tyr | Thr | Leu | Asn | Asp | Asn | Ala | Arg | Ser | Ser | Pro |
| | | | | 350 | | | | | 355 | | | | | 360 |
| Val | Val | Ile | Asp | Ala | Ser | Thr | Ala | Ile | Asp | Ala | Pro | Ser | Asn | Leu |
| | | | | 365 | | | | | 370 | | | | | 375 |
| Arg | Phe | Leu | Ala | Thr | Thr | Pro | Asn | Ser | Leu | Leu | Val | Ser | Trp | Gln |
| | | | | 380 | | | | | 385 | | | | | 390 |
| Pro | Pro | Arg | Ala | Arg | Ile | Thr | Gly | Tyr | Ile | Ile | Lys | Tyr | Glu | Lys |
| | | | | 395 | | | | | 400 | | | | | 405 |
| Pro | Gly | Ser | Pro | Pro | Arg | Glu | Val | Val | Pro | Arg | Pro | Arg | Pro | Gly |
| | | | | 410 | | | | | 415 | | | | | 420 |
| Val | Thr | Glu | Ala | Thr | Ile | Thr | Gly | Leu | Glu | Pro | Gly | Thr | Glu | Tyr |
| | | | | 425 | | | | | 430 | | | | | 435 |
| Thr | Ile | Tyr | Val | Ile | Ala | Leu | Lys | Asn | Asn | Gln | Lys | Ser | Glu | Pro |
| | | | | 440 | | | | | 445 | | | | | 450 |
| Leu | Ile | Gly | Arg | Lys | Lys | Thr | | | | | | | | |
| | | | | 455 | | | | | | | | | | |

<210> 18
<211> 459

<212> PRT

<213> Artificial Sequence

<220>

<223> fibronectin fragment named CHV-181

<400> 18

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Thr | Asp | Leu | Arg | Phe | Thr | Asn | Ile | Gly | Pro | Asp | Thr | Met | Arg |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Val | Thr | Trp | Ala | Pro | Pro | Pro | Ser | Ile | Asp | Leu | Thr | Asn | Phe | Leu |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Arg | Tyr | Ser | Pro | Val | Lys | Asn | Glu | Glu | Asp | Val | Ala | Glu | Leu |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Ser | Ile | Ser | Pro | Ser | Asp | Asn | Ala | Val | Val | Leu | Thr | Asn | Leu | Leu |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Val | Ser | Ser | Val | Tyr | Glu | Gln |
| | | | | 65 | | | | | 70 | | | | | 75 |
| His | Glu | Ser | Thr | Pro | Leu | Arg | Gly | Arg | Gln | Lys | Thr | Gly | Leu | Asp |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Ser | Pro | Thr | Gly | Ile | Asp | Phe | Ser | Asp | Ile | Thr | Ala | Asn | Ser | Phe |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Thr | Val | His | Trp | Ile | Ala | Pro | Arg | Ala | Thr | Ile | Thr | Gly | Tyr | Arg |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Ile | Arg | His | His | Pro | Glu | His | Phe | Ser | Gly | Arg | Pro | Arg | Glu | Asp |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Arg | Val | Pro | His | Ser | Arg | Asn | Ser | Ile | Thr | Leu | Thr | Asn | Leu | Thr |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Pro | Gly | Thr | Glu | Tyr | Val | Val | Ser | Ile | Val | Ala | Leu | Asn | Gly | Arg |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Glu | Glu | Ser | Pro | Leu | Leu | Ile | Gly | Gln | Gln | Ser | Thr | Val | Ser | Asp |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Val | Pro | Arg | Asp | Leu | Glu | Val | Val | Ala | Ala | Thr | Pro | Thr | Ser | Leu |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Leu | Ile | Ser | Trp | Asp | Ala | Pro | Ala | Val | Thr | Val | Arg | Tyr | Tyr | Arg |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Ile | Thr | Tyr | Gly | Glu | Thr | Gly | Gly | Asn | Ser | Pro | Val | Gln | Glu | Phe |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Thr | Val | Pro | Gly | Ser | Lys | Ser | Thr | Ala | Thr | Ile | Ser | Gly | Leu | Lys |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Pro | Gly | Val | Asp | Tyr | Thr | Ile | Thr | Val | Tyr | Ala | Val | Thr | Gly | Arg |
| | | | | 245 | | | | | 250 | | | | | 255 |
| Gly | Asp | Ser | Pro | Ala | Ser | Ser | Lys | Pro | Ile | Ser | Ile | Asn | Tyr | Arg |
| | | | | 260 | | | | | 265 | | | | | 270 |
| Thr | Glu | Ile | Asp | Lys | Pro | Ser | Met | Ala | Ile | Pro | Ala | Pro | Thr | Asp |
| | | | | 275 | | | | | 280 | | | | | 285 |
| Leu | Lys | Phe | Thr | Gln | Val | Thr | Pro | Thr | Ser | Leu | Ser | Ala | Gln | Trp |
| | | | | 290 | | | | | 295 | | | | | 300 |
| Thr | Pro | Pro | Asn | Val | Gln | Leu | Thr | Gly | Tyr | Arg | Val | Arg | Val | Thr |
| | | | | 305 | | | | | 310 | | | | | 315 |
| Pro | Lys | Glu | Lys | Thr | Gly | Pro | Met | Lys | Glu | Ile | Asn | Leu | Ala | Pro |
| | | | | 320 | | | | | 325 | | | | | 330 |
| Asp | Ser | Ser | Ser | Val | Val | Val | Ser | Gly | Leu | Met | Val | Ala | Thr | Lys |
| | | | | 335 | | | | | 340 | | | | | 345 |
| Tyr | Glu | Val | Ser | Val | Tyr | Ala | Leu | Lys | Asp | Thr | Leu | Thr | Ser | Arg |
| | | | | 350 | | | | | 355 | | | | | 360 |
| Pro | Ala | Gln | Gly | Val | Val | Thr | Thr | Leu | Glu | Asn | Val | Ser | Pro | Pro |
| | | | | 365 | | | | | 370 | | | | | 375 |

| | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Arg | Ala | Arg | Val | Thr | Asp | Ala | Thr | Glu | Thr | Thr | Ile | Thr | Ile |
| | | | | 380 | | | | | 385 | | | | | 390 |
| Ser | Trp | Arg | Thr | Lys | Thr | Glu | Thr | Ile | Thr | Gly | Phe | Gln | Val | Asp |
| | | | | 395 | | | | | 400 | | | | | 405 |
| Ala | Val | Pro | Ala | Asn | Gly | Gln | Thr | Pro | Ile | Gln | Arg | Thr | Ile | Lys |
| | | | | 410 | | | | | 415 | | | | | 420 |
| Pro | Asp | Val | Arg | Ser | Tyr | Thr | Ile | Thr | Gly | Leu | Gln | Pro | Gly | Thr |
| | | | | 425 | | | | | 430 | | | | | 435 |
| Asp | Tyr | Lys | Ile | Tyr | Leu | Tyr | Thr | Leu | Asn | Asp | Asn | Ala | Arg | Ser |
| | | | | 440 | | | | | 445 | | | | | 450 |
| Ser | Pro | Val | Val | Ile | Asp | Ala | Ser | Thr | | | | | | |
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<213> Artificial Sequence

<220>

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<400> 19

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| Met | Ala | Ala | Ser | Ala | Ile | Pro | Ala | Pro | Thr | Asp | Leu | Lys | Phe | Thr |
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| Gln | Val | Thr | Pro | Thr | Ser | Leu | Ser | Ala | Gln | Trp | Thr | Pro | Pro | Asn |
| | | | | 20 | | | | | 25 | | | | | 30 |
| Val | Gln | Leu | Thr | Gly | Tyr | Arg | Val | Arg | Val | Thr | Pro | Lys | Glu | Lys |
| | | | | 35 | | | | | 40 | | | | | 45 |
| Thr | Gly | Pro | Met | Lys | Glu | Ile | Asn | Leu | Ala | Pro | Asp | Ser | Ser | Ser |
| | | | | 50 | | | | | 55 | | | | | 60 |
| Val | Val | Val | Ser | Gly | Leu | Met | Val | Ala | Thr | Lys | Tyr | Glu | Val | Ser |
| | | | | 65 | | | | | 70 | | | | | 75 |
| Val | Tyr | Ala | Leu | Lys | Asp | Thr | Leu | Thr | Ser | Arg | Pro | Ala | Gln | Gly |
| | | | | 80 | | | | | 85 | | | | | 90 |
| Val | Val | Thr | Thr | Leu | Glu | Asn | Val | Ser | Pro | Pro | Arg | Arg | Ala | Arg |
| | | | | 95 | | | | | 100 | | | | | 105 |
| Val | Thr | Asp | Ala | Thr | Glu | Thr | Thr | Ile | Thr | Ile | Ser | Trp | Arg | Thr |
| | | | | 110 | | | | | 115 | | | | | 120 |
| Lys | Thr | Glu | Thr | Ile | Thr | Gly | Phe | Gln | Val | Asp | Ala | Val | Pro | Ala |
| | | | | 125 | | | | | 130 | | | | | 135 |
| Asn | Gly | Gln | Thr | Pro | Ile | Gln | Arg | Thr | Ile | Lys | Pro | Asp | Val | Arg |
| | | | | 140 | | | | | 145 | | | | | 150 |
| Ser | Tyr | Thr | Ile | Thr | Gly | Leu | Gln | Pro | Gly | Thr | Asp | Tyr | Lys | Ile |
| | | | | 155 | | | | | 160 | | | | | 165 |
| Tyr | Leu | Tyr | Thr | Leu | Asn | Asp | Asn | Ala | Arg | Ser | Ser | Pro | Val | Val |
| | | | | 170 | | | | | 175 | | | | | 180 |
| Ile | Asp | Ala | Ser | Thr | Ala | Ile | Asp | Ala | Pro | Ser | Asn | Leu | Arg | Phe |
| | | | | 185 | | | | | 190 | | | | | 195 |
| Leu | Ala | Thr | Thr | Pro | Asn | Ser | Leu | Leu | Val | Ser | Trp | Gln | Pro | Pro |
| | | | | 200 | | | | | 205 | | | | | 210 |
| Arg | Ala | Arg | Ile | Thr | Gly | Tyr | Ile | Ile | Lys | Tyr | Glu | Lys | Pro | Gly |
| | | | | 215 | | | | | 220 | | | | | 225 |
| Ser | Pro | Pro | Arg | Glu | Val | Val | Pro | Arg | Pro | Arg | Pro | Gly | Val | Thr |
| | | | | 230 | | | | | 235 | | | | | 240 |
| Glu | Ala | Thr | Ile | Thr | Gly | Leu | Glu | Pro | Gly | Thr | Glu | Tyr | Thr | Ile |
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 Gly Arg Lys Lys Thr Cys
 275

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<400> 24

Gly Ile Leu Gly Phe Val Phe Thr Leu

1

5